

AAAAI Ask the Expert  
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Ask the Expert

Appropriate molds for skin testing

Q:

We wish to develop a screening test panel of 40 allergens containing at least 6 major molds and an extended panel with even more molds for SE USA and that would also cover AFS. Looking at the practice parameters for mold they recommend on the basic panel:

*Alternaria alternata*

*Cladosporium* (*C. cladosporioides*, *C. herbarum*)

*Penicillium* (*P. chrysogenum*, *P. expansum*)

*Aspergillus fumigatus*

*Epidermophyton* *nigrum*, *Dreschlera* or *Bipolaris* type

Several questions:

a) What is meant by *Dreschlera* or *Bipolaris* type?

b) In an article in 1995 by Horner et al (see below): "consensus is that skin test panels should include at a minimum: *Alternaria alternata*, *Aspergillus fumigatus*, *Cladosporium herbarum*, *Epidermophyton nigrum*, *Fusarium roseum*, and *Penicillium chrysogenum* (notatum)." Parameters don't mention *Fusarium roseum*.

c) An extract companies' aerobiology expert recommended including both *C. cladosporioides* and *C. herbarum* in the basic testing panel since they are antigenically unique.

d) One extract company has *Fusarium solani* and *moniliforme* in their catalog and another has *Fusarium vasinfectum*. Neither has the above *Fusarium roseum*, and the article referenced below states (2) analytic evidence that *Fusarium solani* has the most abundant antigens. Would you pick *F. solani* for the extended panel?

e) My hypothetical panel of 6 basic molds includes:

*A. Alternata*, *A. fumigatus*, *C. herbarum* and *C. cladosporioides*, *P. notatum* and *E. nigrum*.  
What are your thoughts on these six?

f) What molds should I select for an extended panel?

*Helminthosporium solani* or *interseminatum*, other?

*Curvularia spicifera*?

*Fusarium* –species selection? –see above

*Mucor racemosus* or *plumbeus*?

*Phoma betae* or *herbarum*?

*Puccinia pullulans*?

*Rhizopus nigricans*?

*Stemphylium solani*?

*Bipolaris sorokiniana*?

Botrytis cinerea?  
Trichophyton tonsurans?  
Aspergillus niger?  
Aspergillus flavus?  
Exserohilum?  
Acremonium?

What about other species not as common on allergy test sheets?

Candida  
Chaetomium globosum  
Slime molds  
Nigrospora  
Trichophyton  
Smut molds

Note: Mabry et al test the following when evaluating suspected allergic fungal sinusitis:  
Alternaria, Aspergillus, Curvularia, Epicoccum, Fusarium, Helminthosporium,  
Hormodendrum, Mucor, Penicillium, Pullularia, Stemphylium

1) Mabry RL, Marple BF, Mabry CS. Mold testing by RAST and skin test methods in patients with allergic fungal sinusitis. Otolaryngol Head Neck Surg. Sep 1999;121(3):252-4.

2) CLINICAL MICROBIOLOGY REVIEWS, Apr. 1995, p. 161–179 Vol. 8, No. 2  
Fungal Allergens  
W. E. HORNER,\* A. HELBLING, J. E. SALVAGGIO, AND S. B. LEHRER  
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A:

Thank you for your recent inquiry.

I am going to ask Dr. Robert Bush, who is a nationally known expert in the aerobiology of mold allergens, to respond to your question. As soon as I hear from Dr. Bush, I will forward his response to you.

Thank you again for your inquiry.

Sincerely,  
Phil Lieberman, M.D.

We have received a response from Dr. Robert Bush. Thank you again for your inquiry and we hope this response is helpful to you.

Sincerely,  
Phil Lieberman, M.D.

Response from Dr. Robert Bush:

As you are aware, fungal allergenic extracts for diagnostic (much less therapeutic) use are limited by variability in composition, lack of standardization, and frequent cross-reactivity. Also changes in nomenclature adds to the confusion.

Here are my suggestions:

For a general screening panel (prick skin testing):

*Alternaria alternata*

*Aspergillus fumigatus*

*Penicillium chrysogenum* (notatum)

*Cladosporium herbarum*, *C. cladosporioides*, *C. sphaerospermum* [*Hormodendrum hordei*](consider mix) *Drechslera*(*Curvularia*) *spicifera* or *Bipolaris sorokiniana* (*Helminthosporium sativum*) possibly *Epicoccum nigrum*

For the expanded panel:

*Fusarium* species- *solani*, *vasoinfectum*, *moniliforme* (consider mix) *Mucor racemosus*

*Aureobasidium* (*Pullularia*) *pullulans* *Aspergillus* species -*flavus*, *niger* (consider mix)

*Trichophyton tonsurans* *Chaetomium globosum*

+/- *Candida albicans*

*Phoma* and *Stemphyllium* share allergens with *Alternaria*. *Aspergillus* and *Penicillium* have cross-reactive allergens. I think this would be a reasonable approach. IT with fungi is another story, with limited published studies.

Dr Bob Esch from Greer Labs is a good reference source.

Best Regards,  
Bob Bush